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ABSTRACT

The development, testing, and modification of an instrument to measure attitude change toward economic issues among economics students is described in this paper. It was initially hypothesized that a continuum of attitudes to economic issues existed, ranging from extreme interventionist ideas at one end to extreme laissez-faire at the other end, and that respondents would occupy a particular position on that continuum. Statements which reveal economic attitudes were collected for possible inclusion from other tests, from discussions with students at schools similar to those where tests would later be conducted, and from the researcher. Despite recognized problems a Likert scale was used. The first version was tested by 68 students at three schools. After analysis of students' responses, three more revised versions were tested on additional students at other schools before a final version with twelve questions was accepted. Possible continuing problems exist with assumptions that student attitudes are unidimensional, that scores on individual items of a scale have additive properties, that the interval between each rating is uniform, and that the questions have identical meanings for all respondents. Appendices include each version of the test. (IS)

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THE DEVELOPMENT AND TESTING OF AN ECONOMICS ATTITUDE SCALE

by

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The Development and Testing of an Economics Attitude Scale

by

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Summary

This paper reports on one aspect of a research project conducted in 1980-84 which had as its central question whether the study of economics in schools has any effect on students' attitudes to economic issues.It describes how an attitude scale was compiled,piloted and modified for use as a pre- and post-test instrument in the major study concerning attitude change.The assumption of unidimensionality is questioned,and prospective researchers in the attitudinal field are alerted to possible difficulties.

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Introduction

This paper reports on one aspect of a research project conducted in 1980-84 which had as its central question whether the study of economics in schools has any effect on students' attitudes to economic issues. It describes the development and testing of an attitude scale for use as a pre- and post-test instrument in a major study concerning attitude change.

Before developing the instrument on attitudes to economic issues, it was necessary to consider what attitudes might be measured. It was initially hypothesised that a continuum of attitudes to economic issues existed, ranging from extreme interventionist ideas at one end to extreme laisser-faire views at the other. It was further hypothesised that respondents would occupy a particular position on this continuum, depending on their 'world view', and that their responses to particular attitude statements would be determined to a large extent by that position. For example, a respondent tending to the latter end of the continuum would oppose government regulation of industry, and believe in the virtues of private enterprise and the vices of nationalisation. In contrast, a respondent who veered towards the radical end would tend to magnify the role of the government, stress the importance of trade unions, and see advantages in a general diminution of capitalism and an expansion in socially controlled activities, whilst those with a 'liberal-economic' outlook would tend to stress the importance of not overtaxing initiative and enterprise, and would be more dubious about the role of government in assuaging unemployment.

Method (Scale A)

The next task was to collect statements on economic attitudes for an item pool, which would then be piloted. It was not possible to use a U.K.-originated attitude scale on economic issues, since none existed. So it was necessary to discover whether any such scales had been produced elsewhere, and if so, whether it was possible to adapt them for use with U.K. students. Dawson, (1980) in his review on attitudes and opinions on economic issues, gave twelve examples of economics attitude scales developed for particular research projects in the U.S.A. But none of these were nationally developed instruments, comparable in standing to, for example, the Test of Understanding in College Economics. In most cases, inadequate information was provided about how the scales were constructed, and to what extent they were reliable and valid. As one distinguished economics education specialist noted: 'the evaluator interested in affective changes will usually be forced to develop a new assessment instrument, or, at the least, to modify an existing device to suit the specific needs of the evaluator.' (Soper, 1977, p 235).

One of the scales reprinted in Dawson (1980) was first published in an article in the Journal of Economic Education (Scott and Rothman, 1975, p 111). Questions 1 to 11 of Scale A (see Appendix 1) consisted of questions adapted from this source. Question 12 was obtained from a social attitude inventory (Eysenck, 1963, p 290).

In obtaining items for a pool, it is generally regarded as helpful to conduct unstructured interviews with students of the type who will be asked to respond subsequently to the questionnaire. Items couched in everyday language may then be obtained, expressing in vivid terms the attitudes in question. To this end, interviews were held with five sixth formers in two schools, one a comprehensive school, the other independent. Each interview lasted about half an hour, and its function was to explore the origins, complexities and ramifications of the attitudes to economic issues under consideration. In the event, this exercise proved relatively unhelpful for accumulating attitude statements. In these interviews, students tended to make middle-of-the-road statements, which would not have helped to differentiate individuals in the subsequent trials.

Nevertheless,some items were obtained.Items 13 and 17 of Scale A were gleaned from interviews conducted at the independent school.

If most of the statements used in the scale had been generated from informal discussion with students who were representative of the target population,it would have been normal practice to use Likert's criteria for rejecting unsatisfactory items.(Likert,1932).Examples of these criteria are:no statements should be factual;statements should not be double-barrelled;statements should not be complex.In the event,item analysis resulted in the same items being rejected as would have been under Likert's preliminary screening criteria.Nevertheless, the pilot testing would have been conducted more summarily had the Likert procedure been applied before the first pilot trial,and had the assumption not been made that the instrument on which Scale A was based had been subject to such scrutiny.

Items 14,15 and 16 were devised by the researcher. Items 18,19 and 20 were derived from a poster produced by the Confederation of British Industry entitled 'British Industry:the Myths and the Facts',which contained a number of contentious statements.

Of the 20 items initially selected,ten were positive statements,and ten negative, along a conservative/radical continuum.Statement 1:'Private enterprise is the most efficient economic system' is an example of the former statement;'Poverty would be almost completely abolished if we made certain basic changes in our social and economic system' is an example of the latter.It is important to incorporate both positive and negative examples of the attitudes,first so that any bias resulting from a tendency towards agreement with the questioner is eliminated,and secondly,so as 'to minimise possible response sets of subjects that might be generated if only favorable (sic) or unfavorable statements were included in the scale.'(Edwards,1957,p 155).

A Likert 5-point scale was employed,ranging as follows:

1 = if you strongly agree with the statement
2 = if you agree on the whole
3 = if you are undecided
4 = if you disagree on the whole
5 = if you strongly disagree

For the positive items (agreement denoting a bias towards the conservative end of the continuum),values of 1 or 2 were ascribed to agreement.For negative items, the scoring was reversed,so that disagreement with the statement would again score 1 or 2.Disagreement with positive items scored 4 or 5,as did agreement with negative items.The items on Scale A where scoring was reversed were 3,4,6,7,8, 10,11,14,16 and 17.

Various problems are associated with the use of Likert-type scales.In order to measure attitudes at all,certain assumptions must be made,for example that attitudes <u>are</u> measurable,that they vary along a linear continuum,and that measurable attitudes are common to the group.Any longitudinal survey of attitude change assumes that attitudes are not held very temporarily,but that change is possible,and that such change is capable of rational explanation. The attitudes that respondents hold may not correspond precisely to the attitudes that they express,but may be subject to rationalisation or deception, particularly when their responses may be scrutinised by their regular class teacher.(Remmers,1972,p 7).Also,all the attitude scaling methods assume that a particular test item has the same meaning for all respondents,and thus a given response will be scored identically for everyone making it.(Severy,1974,p 4).

Furthermore,Likert's modification of the methods developed by Thurstone makes the questionable assumption that attitudes are distributed normally.However, Likert obtained a correlation of 0.99 between scale values obtained by the Thurstone method and by the method of arbitrarily assigning numerical values

from 1 to 5 to the various alternative responses (Likert,1932,pp 1-55).Likert also reported higher coefficients of reliability by this method than by the Thurstone scoring technique.Equating the number of items used,he obtained higher coefficients of correlation for ten different attitude scales and for every group measured.

Whilst the Thurstone scaling procedures give absolute meaning to scale units, and therefore to an individual score achieved on an attitude instrument constructed by these procedures,this does not apply with the Likert technique. An individual score on a Likert scale can only be interpreted by reference to sets of norms for defined populations,since the units of the scale are not 'rational' in the sense of having been defined(psychologically)as equal and equally spaced along the attitude continuum.(Remmers,1972,p 95).A Likert scale provides a cumulative type of measurement,an individual's attitude position being determined by the 'amount' of (un)favourable response which accumulates in his answers to the items.

So Likert scales,which are ordinal in character,have a natural or defined ordering of the categories,but there is no obvious way of assigning values to the distances between them.(Goldstein,1979,p 51).What then does an individual score mean? In the attitude scale under consideration,the 'score' was initially taken as an index of the position of a particular respondent on the underlying variable which the scale intends to measure.The scores provide an indication of rank-order positions of individuals with respect to the underlying variable.It is not correct to assume that the units have the same meaning throughout the scale. (Remmers,1972,p 97).

It was decided to conduct a number of pilot tests of drafts of the instrument, in order to ensure that it had the required attributes.Such pilot tests would also provide some estimate of the variability amongst the respondents with respect to the attitudes in question.This would be of considerable importance in determining the size of the sample required in the full-scale study. Admittedly,pilot studies are rarely of much value in providing estimates of variability,because they are too small to yield estimates with any worthwhile precision.Still,a pilot study does provide some evidence,and this is especially valuable when,as in this case,no closely related statistics were available. (Moser,1971,p 49).

The resultant 20-item scale (see Appendix 1) was then piloted in February,1981 in three schools,one independent,one technical and one comprehensive,with a total of 68 sixth formers studying GCE Advanced Level Economics.In retrospect an inefficiency in the development of the attitude scale resulted from the inclusion of only 20 items in Scale A.For the first trial,it would have been more sensible to include a larger number of items,so that after the initial pilot trial,enough items would have remained for the second trial.However,this lack of foresight simply added another round to the trial stage,and was not a serious problem.

Results and item analysis

Subsequently the completed forms were scored and analysed,in order to improve the scale for future use.The scores of individual respondents were calculated (see Table 1) and item analysis carried out.The best available measure of students' attitudes to economic issues was the responses to the total item pool that had been constructed.In other words,the instrument could not be validated against some external measure of economic values.Nevertheless,by pilot-testing the scale,it would be possible at least to achieve consistency and homogeneity,and it would be more likely also to be valid.

In forming the item pool,it was important to bear in mind three considerations. (Moser,1971,p 362).It was decided to reject any items where the majority of respondents inclined to one end of the continuum.Since the aim of any item was to obtain a spread of respondents across the range with respect to their economic

attitudes,statements which resulted in unanimity of view were obviously unhelpful.It has been found that items with high neutral values do not work well in Likert scales,so items would be eliminated if they caused a majority of respondents to 'sit on the fence' in the central 'undecided' category.While it was necessary to provide such a category,it was not possible to hold confidently that students who nominated it as their response lay midway between extreme agreement and disagreement on the issue in question.There might be a number of reasons why they remained undecided on a particular issue.Consequently, items where few respondents remained undecided were to be preferred.

Table 1.Respondents' Scores on Scale A

Respondent No.	Score	Respondent No.	Score	Respondent No.	Score
1	44	24	52	47	51
2	54	25	50	48	53
3	54	26	65	49	56
4	60	27	84	50	53
5	46	28	69	51	65
6	66	29	68	52	53
7	47	30	40	53	58
8	73	31	53	54	61
9	61	32	44	55	55
10	62	33	43	56	54
11	53	34	48	57	57
12	75	35	50	58	50
13	60	36	48	59	65
14	65	37	65	60	63
15	77	38	49	61	48
16	60	39	60	62	56
17	82	40	52	63	76
18	69	41	52	64	56
19	92	42	49	65	50
20	68	43	54	66	57
21	78	44	45	67	75
22	88	45	54	68	59
23	66	46	55		

As stated above,it was also necessary to ensure that items that remained after the filtering process fell approximately equally into the positive and negative categories.Finally,items would be removed if they failed to discriminate between respondents with high or low total scores.If,for example,most of the students with high scores on the instrument as a whole scored one or two on a particular item, it would be prudent to doubt that item's value.Desirable items would be those where responses correlated highly with responses on the instrument as a whole. The distribution of responses to the 20 statements by category was as given in Table 2.

Table 2.Responses by Category to Scale A

Statement	Category										Statement
	1	2	3	4	5	1	2	3	4	5	
1	4	33	14	13	4	8	25	13	18	4	11
2	7	28	7	21	5	1	10	14	24	19	12
3	10	25	11	20	7	2	13	22	24	7	13
4	2	10	13	29	14	48	14	3	2	1	14
5	8	26	5	19	10	18	28	15	3	4	15
6	6	15	12	24	11	15	46	3	1	3	16
7	4	5	6	15	38	5	9	13	24	17	17
8	6	3	3	13	43	2	21	16	21	8	18
9	0	5	3	27	33	3	33	12	12	8	19
10	7	17	11	29	6	17	36	6	6	3	20

Grouping categories 1 and 2,and 4 and 5 together,and reversing the scoring for negatively expressed items,the result given in Table 3 was obtained.

Table 3.Categories 1+2,and 4+5,grouped,and reversed for negative items.

Statement	Category 1+2	4+5	Statement	Category 1+2	4+5
1	37	17	11	22	33
2	35	26	12	11	43
3	22	35	13	15	31
4	43	12	14	3	62
5	34	29	15	46	7
6	35	21	16	4	61
7	53	9	17	41	14
8	56	9	18	29	23
9	5	60	19	36	20
10	33	24	20	53	9

From Table 3 it was possible to decide which items should be excluded on the ground that the distribution of responses was relatively too skewed:7,8,9,14, 15,16 and 20.Items 4 and 12 had approximately the same distribution of responses, and it was decided to eliminate item 12 rather than item 4 on the ground of content validity.Item 13 was also eliminated,since,as indicated in Table 2,it had a high 'undecided' value of 22,whereas other statements scored from 3 to 16 in this category.In order to decide which items were unsatisfactory as discriminators,a relatively unsophisticated procedure was used.The respondents who comprised the top 25 per cent and the bottom 25 per cent on total scores were taken,and the score sheets were inspected to see which items brought forth a 'perverse' response,i.e. one inconsistent with the general run of responses.The results of this operation for the top 17 respondents (25 per cent of the sample) are given in Table 4.None of these respondents scored a one or two for items 9,14 or 18.

Table 4.Number of respondents in top 25 per cent group in Scale A scoring 1 or 2 for each item.

Item number	No. of 1 and 2 scores recorded	Item no.	No. of 1 and 2 scores
1	5	11	1
2	1	12	1
3	1	13	1
4	5	15	10
5	3	16	1
6	2	17	2
7	5	19	7
8	7	20	7
10	5		

It was decided to remove item 15,since a majority of high scorers scored 1 or 2 for it,in other words it discriminated negatively.
The same operation was performed on the bottom 17 respondents (25 per cent of the sample),with the outcome given in Table 5.
On these results,items 9,12,14 and 16 were unsatisfactory and had to be omitted, since too many low scorers on the scale as a whole scored highly on them.None of these respondents scored a 4 or 5 on items 1,6,7,8 or 15.
In summary,it was decided to reject the following items:7,8,9,12,13,14,15,16 and 20.In order to replenish the item bank,it was necessary to pilot some more items.This might not have been necessary had more items been included in the initial pilot test.Several of the statements eliminated in the first pilot trial were modified in the light of the response distribution and piloted again.

Table 5.No. of respondents in bottom 25 per cent group in Scale A scoring a 4 or 5 for each item.

Item no.	No. of 4 and 5 scores recorded	Item no.	No. of 4 and 5 scores
2	1	13	5
3	4	14	14
4	1	16	13
5	2	17	2
9	10	18	2
10	2	19	4
11	2	20	1
12	9		

Method (Scale B)

In Attitude Scale B,items 1 to 11 comprised those items that had survived the first pilot test.Items 12 to 17 were devised by the researcher,by adapting some of the items rejected from pilot scale A.Items 18 to 29 were devised by the researcher's postgraduate students.In this attitude scale,15 items out of the total of 29 were to be scored negatively,namely items 3,4,6,7,8,9,12,13,15, 17,19,21,23,24 and 28.Attitude Scale B (See Appendix 2) was then ready for pilot testing,which took place in March 1981,using Advanced Level economics classes in two comprehensive schools (neither being the previously used comprehensive school).A total of 64 students responded to the attitude scale.

Results and item analysis (Scale B)

The respondents' scores were as shown in Table 6.

Table 6.Respondents' scores on Scale B

Respondent no.	Total score	Respondent no.	Total score	Respondent no.	Total score
1	112	23	75	45	83
2	94	24	89	46	37
3	97	25	80	47	54
4	92	26	93	48	78
5	92	27	93	49	94
6	118	28	120	50	86
7	75	29	92	51	88
8	85	30	57	52	91
9	81	31	63	53	77
10	92	32	83	54	111
11	52	33	104	55	80
12	97	34	82	56	73
13	90	35	96	57	94
14	78	36	87	58	86
15	89	37	94	59	85
16	103	38	87	60	89
17	121	39	117	61	76
18	67	40	75	62	85
19	93	41	86	63	90
20	87	42	89	64	86
21	97	43	79		
22	90	44	68		

The responses to each of the five categories were again calculated.(See Table 7).

Table 7.Responses by category to individual items on Scale B (negative scores reversed).

Item	Category: 1	2	3	4	5	1+2	4+5
1	2	37	10	14	1	39	15
2	8	20	11	22	3	28	25
3	3	9	6	25	21	12	46
4	11	22	19	9	3	33	12
5	11	25	13	9	6	36	15
6	9	18	18	12	7	27	19
7	4	26	11	19	4	30	23
8	13	11	16	19	5	24	24
9	13	19	18	11	3	32	14
10	3	14	15	28	4	17	32
11	7	29	14	13	1	36	14
12	11	13	20	16	4	24	20
13	3	18	24	12	7	21	19
14	9	14	4	23	14	23	37
15	5	11	12	25	11	16	36
16	4	9	18	20	13	13	33
17	1	8	6	37	12	9	49
18	6	18	18	18	4	24	22
19	2	17	31	13	1	19	14
20	8	16	21	13	6	24	19
21	5	15	11	26	7	20	33
22	4	6	12	26	16	10	42
23	15	21	22	5	1	36	6
24	6	11	11	26	10	17	36
25	9	15	18	16	6	24	22
26	3	6	36	17	2	9	19
27	2	19	19	18	6	21	24
28	9	18	14	19	4	27	23
29	8	12	15	22	7	20	29

Once again,the three screening criteria for eliminating items were invoked. On the unevenness criterion,it was decided to reject items 3,17 and 22.Items 19 and 26 were also removed,since the number of responses in the 'undecided' category was too high.In order to decide which items were unsatisfactory as discriminators in Scale B,a more complex procedure was used.The respondents comprising the top and bottom 25 per cent on total scores were taken.This resulted in two groups of 16 respondents.The response sheets of the 16 who had obtained the lowest totals in the survey were scrutinised,and figures were calculated for how many of these respondents scored 1 or 2 for each statement (see Table 8).

So,for example,for statement 1,14 of the 16 respondents checked a 1 or 2,whilst for statement 2,only 11 respondents of the 16 checked a 1 or 2.The same procedure was followed for the group of 16 top scorers.For statement 1,for example,four of this group registered a one or two,whilst for statement 2, three of this group registered a 1 or 2. The next step was to calculate the discrimination index for each item.The formula used was:number scoring 1 or 2 in bottom group - number scoring 1 or 2 in top group,divided by 16. Table 8 displays the results of this analysis for each item.

Table 8.Discrimination indices for individual items on Scale B.

Question No.	B	T	B-T	Divided by 16 equals	Discrimination Index
1	14	4	10		0.62
2	11	3	8		0.5
3	10	0	10		0.62
4	15	3	12		0.75
5	12	4	8		0.5
6	9	5	4		0.25
7	12	3	9		0.56
8	12	2	10		0.62
9	15	2	13		0.81
10	5	3	2		0.12
11	8	5	3		0.19
12	12	1	11		0.69
13	12	0	12		0.75
14	9	1	8		0.5
15	10	0	10		0.62
16	8	0	8		0.5
17	4	0	4		0.25
18	10	2	8		0.5
19	11	2	9		0.56
20	7	4	3		0.19
21	9	4	5		0.31
22	5	1	4		0.25
23	15	5	10		0.62
24	11	0	11		0.69
25	7	3	4		0.25
26	3	4	-1		-0.06
27	12	2	10		0.62
28	14	3	11		0.69
29	7	2	5		0.31

B=number getting 1 or 2 in bottom group
T=number getting 1 or 2 in top group

Items 3,17,19,22 and 26 had already been rejected on other criteria.It was decided to eliminate a further four items (to reduce the number of items in the next draft attitude scale to 20) and those with the lowest discrimination index were thus excluded.These were as given in Table 9.Item 6 also had a discrimination index of 0.25,but item 25 was eliminated in order to keep a reasonable spread of statements on the various issues.

Table 9.Items on Scale B with lowest discrimination indices

Item	Discrimination index
10	0.12
11	0.19
20	0.19
25	0.25

The discrimination coefficient indicates the ability of a particular statement to distinguish between those whose attitudes tend to one extreme of the continuum on the attitude scale as a whole and those whose attitudes tend to the other extreme (on the assumption that the scale is unidimensional,which is questioned elsewhere (Whitehead,1986)).The higher the coefficient is,(i.e. the closer it is to +1.0) the better the item on this criterion.The lower the coefficient is (i.e. the closer it is to -1.0),the worse the item.An item discrimination coefficient of zero would indicate a statement that completely

fails to discriminate between students whose attitudes lie at either extreme of the continuum. In general, it is accepted that an item with a discrimination coefficient below +0.2 is a poor discriminator. As shown in Table 9, it was possible in the development of this attitude scale to omit all items with a discrimination coefficient of less than 0.25. Most of the item discrimination coefficients were quite satisfactory for a scale of this nature.

Method (Scale C)

The surviving 20 items were collated and Attitude Scale C was constructed. (See Appendix 3). It comprised 8 positively expressed and 12 negatively expressed items. (The positive items were 1,2,5,12,14,15,18 and 20). This scale was then piloted in late March 1981 in a comprehensive senior high school (not previously used) with 45 lower sixth Advanced Level economics students in three classes.

Results and item analysis (Scale C).

The scores on Scale C were as given in Table 10.

Table 10. Respondents' scores on Scale C

Respondent	Score	Respondent	Score	Respondent	Score
1	51	16	62	31	75
2	51	17	48	32	75
3	62	18	84	33	57
4	69	19	38	34	67
5	58	20	65	35	54
6	54	21	68	36	53
7	57	22	64	37	53
8	50	23	62	38	61
9	56	24	69	39	67
10	60	25	74	40	58
11	39	26	51	41	62
12	55	27	60	42	82
13	56	28	62	43	50
14	81	29	58	44	62
15	87	30	87	45	77

Item analysis was again carried out. None of the items received a very high score in the 'undecided' category (see Table 11). Item 18 received the highest number of '3' scores, namely 15, but this was equalled by the totals in categories 1+2, and categories 4+5. Items were also examined for the distribution of responses across the whole range 1 to 5. Responses in categories 1 and 2, and 4 and 5, for each item, were totalled and compared. All items had a reasonable balance on this criterion. Finally, discrimination indices were calculated for each item. The response sheets were ranked and the respondents who comprised the top and bottom 25 per cent in terms of their total score were selected (11 respondents in each group). For each item, the number of respondents in the bottom group who registered a 1 or 2 for that item was recorded (see Table 12). Next, the number of respondents in the top group who scored a 1 or 2 for each item was calculated. For example, with respect to item 1, there were 10 respondents from the top group registering a 1 or 2, whilst only 1 respondent in the bottom group did so. Next, the difference between the two totals was taken (10-1=9) and divided by 11 (the number in each group). For item 1, the discrimination index was 0.82. The indices for each item are recorded in Table 12. For most of the items, the discrimination coefficients were quite satisfactory. Item 20 recorded only 0.18 (compared with 0.31 when it was

piloted in Scale B) so it was decided to reject this item. A more perplexing problem arose with item 16. Here, less of the low scorers scored a 1 or 2 than did the high scorers (2 and 4 respectively).

Table 11. Responses by category to individual items in Scale C

Item	Responses by category					1+2	4+5	1+2	4+5
	1	2	3	4	5	(unadjusted)		(adjusted)	
1	2	23	11	7	2	25	9	25	9
2	5	18	5	15	2	33	17	33	17
3	5	20	6	10	4	25	14	14	25
4	3	6	14	18	4	9	22	22	9
5	9	19	4	11	2	28	13	28	13
6	2	17	12	9	4	19	13	13	19
7	9	14	9	11	2	23	13	13	23
8	7	14	8	13	3	21	16	16	21
9	5	17	7	10	6	22	16	16	22
10	4	15	9	15	2	19	17	17	19
11	9	13	9	9	5	22	14	14	22
12	12	7	5	13	8	19	21	19	21
13	3	21	4	11	6	24	17	17	24
14	1	13	12	7	12	14	19	14	19
15	9	10	8	15	3	19	18	19	18
16	9	19	6	9	2	28	11	11	28
17	7	19	9	10	0	26	10	10	26
18	3	12	15	7	8	15	15	15	15
19	4	15	8	15	3	19	18	18	19
20	3	11	12	14	5	14	19	14	19

This resulted in a discrimination index of -0.18. This was in strong contrast to the discrimination index of 0.31 which it received when piloted in Scale B. While the content validity of the item was sound, it might have been the case that some knowledge of economics might be necessary for respondents to realise where they stood on this particular issue, and a degree of randomness may therefore have entered into the response to this item. An alternative hypothesis would be that those who tended to the 'liberal-economic' end of the continuum did not extend their free market attitudes to the trade between countries, opting for an autarkic 'little England' attitude instead. However, neither explanation would satisfactorily deal with the disparity between the two discrimination index values. Whatever the reason, it would have been highly unsatisfactory to leave this item in the scale, so it was rejected.

Table 12. Discrimination indices for individual items on Scale C

Item	B (n=11)	T (n=11)	B-T	divided by 11 equals	Discrimination Index
1	10	1	9		0.82
2	10	1	9		0.82
3	5	1	4		0.36
4	6	2	4		0.36
5	8	5	3		0.27
6	6	0	6		0.54
7	6	0	6		0.54
8	7	0	7		0.64
9	4	1	3		0.27
10	6	0	6		0.54
11	8	1	7		0.64
12	7	0	7		0.64
13	9	1	8		0.73
14	7	0	7		0.64
15	7	0	7		0.64
16	2	4	-2		-0.18
17	6	1	5		0.45
18	8	1	7		0.64
19	5	2	3		0.27
20	5	3	2		0.18

Eighteen items remained, and these would form the final draft Attitude Scale D which would be used in a full-scale longitudinal study (See Appendix 4). Of the 18 items, seven were positively expressed (items 1,2,5,12,14,15 and 17) and the remainder negatively expressed.

Testing the reliability of Scale C

One way of ascertaining the reliability of the scores on the scale was to correlate scores on the odd-numbered statements with those on the even-numbered statements. With this 'split-half' method, the correlation so obtained relates to a test of half the full length. The full length test is not twice as reliable as the half test, but its reliability is greater, and can be estimated by the special Spearman-Brown formula, with n=2. Letting rhh stand for the correlation between halves of a test,

$$rtt = \frac{2rhh}{1+rtt}$$

(reliability of a total test estimated from reliability of one of its halves, Guilford, p 426).
Table 13 shows the scores for respondents for each half of the test.

Table 13. Scores for respondents to Scale C divided into total scores on odd and even items

Respondent	Score on odd items (x)	score on even items (y)	x x y
1	20	31	620
2	26	25	650
3	31	31	961
4	32	37	1184
5	28	30	840
6	29	25	725
7	24	33	792
8	24	26	624
9	26	30	780
10	34	26	884
11	20	19	380
12	25	29	754
13	25	31	775
14	37	44	1628
15	44	43	1892
16	35	27	945
17	23	25	575
18	40	44	1760
19	15	23	345
20	33	32	1056
21	38	30	1140
22	31	33	1023
23	31	31	961
24	36	33	1188
25	38	36	1368
26	28	23	644
27	31	29	899
28	30	32	960
29	29	29	841
30	41	46	1886
31	38	37	1406
32	39	36	1404
33	32	25	800
34	34	33	1122
35	31	23	713
36	26	27	702
37	27	26	702
38	32	29	928

Table 13 (continued)

Respondent	Score on odd items (x)	score on even items (y)	x x y
39	33	34	1122
40	27	31	837
41	30	32	960
42	41	41	1681
43	22	28	616
44	34	28	952
45	40	27	1480
	Ex=1391	Ey=1400	Exy=44505

$E'x^2 = Ex^2 - \frac{(Ex)^2}{n} = 1793.6$

$E'y^2 = Ey^2 - \frac{(Ey)^2}{n} = 1616.4$

$E'xy = Exy - \frac{(Ex)(Ey)}{n} = 1229.4$

$rhh = \frac{E'xy}{\sqrt{(E'x^2).(E'y^2)}} = 0.72$

The rhh correlation is 0.72.Substituting into the Spearman-Brown formula,we have:

$$rtt = \frac{2x\ 0.72}{1+0.72} = 0.84$$

According to Edwards,the reliability coefficients typically reported for scales constructed by the method of summated ratings are above 0.85,even when fewer than 20 items make up the scale.(Edwards,1957,p 156).The rtt of 0.84 obtained on scale C was reasonably satisfactory.

But the split-half method does not measure stability;it measures only the internal consistency of the scale.To test for the former,the same scale was administered to one of the three classes that had initially responded to it, approximately one week later.The responses on this occasion were correlated with the same class's previous responses.

The attitude scale would be reliable to the extent that repeat measurements made by it under constant conditions gave the same result (assuming no change in the basic attitudes being examined).The best available method of assessing reliability was employed,namely the re-testing of the same respondents using the same scale.However,this procedure still had drawbacks.A comparison of the two sets of results would not serve as an exact test of reliability,since they could not be regarded as independent.At the re-test,respondents may have remembered their first answers,which would make the scale appear more reliable than was really the case.Another problem might be that the application of the first scale may have made the respondents think carefully about the statements expressed,whilst for the re-test they may not have considered them so seriously. Alternatively,events occurring between the two tests might have caused the respondents to change their minds,though this is unlikely given the short period of time which had elapsed.

As a result of these qualifications,it is only possible to say that the difference between the test and re-test scores is a mixture of unreliability and change in the characteristic itself.Consequently,the coefficient of reliability which was obtained must be regarded as an estimate.Table 14 shows the calculations for the r coefficient,which was 0.84.In this context,this was a satisfactory figure.

Table 14. Test/re-test reliability of Scale C

	First pilot test		Second pilot test		
Respondent no.	Score (x)	x^2	Score (y)	y^2	xy
1	51	2601	65	4225	3315
2	51	2601	51	2601	2601
3	62	3844	57	3249	3534
4	69	4761	69	4761	4761
5	58	3364	46	2116	2668
6	54	2916	60	3600	3240
7	57	3249	63	3969	3591
8	50	2500	43	1849	2150
9	56	3136	53	2809	2968
10	60	3600	58	3364	3480
11	39	1521	47	2209	1833
12	55	3025	53	2809	2915
13	56	3136	54	2916	3024
14	81	6561	82	6724	6642
15	(missing at second test)				
16	62	3844	57	3249	3534
17	48	2304	54	2916	2592
18	84	7056	86	7396	7224
19	38	1444	47	2209	1786
20	65	4225	58	3364	3770
n=19	Ex=1096	Ex^2=65688	Ey=1103	Ey^2=66335	Exy=65628

$$r = \frac{E'xy}{\sqrt{(E'x^2).(E'y^2)}} = 0.84$$

Testing the validity of the Attitude Scale

The reliability of the final scale, Scale D, was discussed in the previous section. While the pilot trials showed that a continuum of responses to the statements in the scale did exist, it is not possible to argue from this result that particular labels should be attached to each end of the scale.

A method used by Eysenck to establish validity (on a political attitude scale) was to ask members of particular political parties to respond to the scale. If the scale were valid, it would be expected that, for example, conservative party members would tend to be grouped towards one end on the radical-conservative continuum, with members of the Labour party tending towards the other end. (Eysenck, 1963, p 287). Such a result was obtained. But in the development of the Economics Attitude Scale, it was difficult to envisage what comparable groups might be asked to respond to the scale, in order to assess its validity. Perhaps members of the Institute of Economic Affairs and the Fabian Society might have facilitated validation, if it had been possible to gain access to them.

As validity is a highly relative concept, it is important to answer the question, 'Valid for what??'. The purpose of devising the EAS was to provide an instrument which would enable students' attitudes to economics statements to be measured on a unidimensional scale of conservatism/radicalism. Subsequent factor analysis of the pre-test responses to the scale indicated that some of the inter-item correlations were low, and a 12-item scale was extracted from the EAS for use as a pre- and post-test instrument. It is the validity of this 12-item scale (EASF-see Appendix 5) which is discussed in this section.

The most common approach to validity assessment is through measuring a scale's construct validity, by investigating whether different instruments that are intended to measure the same characteristic intercorrelate highly with one another. But the relativity of the concept of validity is demonstrated by the fact that even if high intercorrelations are found between two tests, it may still be open to question what is the nature of the variable that the instruments measure in common.

According to Guilford (1978, p 436), when a test is factor-analysed (as in the present case), its validity for measuring a particular factorial trait is indicated by the loading of the test on the factor it represents. With EASF, if it is tenable that two latent variables explain the co-variation between the test items, then factor 1, (the 12-item EASF Scale), explains 22.8 per cent of the total variation. Taking the two-factor solution, the first factor explains 87.9 per cent of the variation predicted by the two factors.

Construct validity has been distinguished into two types, convergent and discriminant validity. (Guilford, 1978, p 437). The latter test of validity, which is investigated by examining whether the test correlates little or not at all with measures of other traits, was not applied in the present case. It would be difficult to conceive of scales, scores on which contrasted strongly with those on EASF. Convergent validity exists when a scale correlates strongly with instruments of other kinds designed to measure the same trait, or which are thought to measure it. The criterion need not be an instrument, as sometimes ratings are used, or comparison with 'known groups'. For example, in assessing the validity of EASF, it might have been possible to ask respondents to rate their political position on a conservative/radical scale, and this could have been correlated with their EASF scores. Alternatively, the EASF scale could have been administered to members of particular political parties in order to establish a significant divergence between their responses on the scale. The first possibility was ruled out, as the respondents might not have reached an age where they could make a clear-cut statement of their political allegiance. Also, asking such a question might have reduced the scale's acceptibility to schools. In the second case, there was no access to political groups which might have responded to the scale.

In order to obtain some assessment of validity by means of intercorrelating EASF with another test, a search was made for a published test that purported to measure a similar latent variable to Factor 1 on EAS (EASF). The nearest equivalent found was the Wilson-Patterson Attitude Inventory (WPAI), a closed test published by the National Foundation for Educational Research (Wilson, 1975, passim). This scale was first published in 1968 as a Conservatism Scale. In the ensuing period it became one of the most widely used attitude questionnaires in the world. The WPAI represents the 1975 revision of this scale, incorporating changes to items which had dated slightly or which had caused some difficulty in understanding or interpretation. The disadvantage of changing some items is that most of the available standardisation and validation data apply to the first version. However, the author states that 'our experience with the test suggests to us that none of the major findings based on the original Conservatism Scale will be upset by these minor modifications' (Wilson, 1975, p 7).

While the WPAI permits the scoring of a number of other attitude dimensions besides general conservatism, this latter factor, (which is conceived as bipolar), is the most relevant for investigating the validity of EASF. In the WPAI, 'conservatism' is defined in the broad, literal sense of resistance to change and the tendency to prefer safe, traditional and conventional forms of institutions and behaviour. (Wilson, 1975, p 10). It is important to note that the WPAI is not primarily concerned with prediction of economic conservatism, even though the author states that such a dimension has been found to have relevance to his instrument. The WPAI was used

in this investigation of convergent validity because it seemed to represent the nearest equivalent to EASF, not because it measured an identical latent variable. Hence one would anticipate a certain positive correlation but not a very large one.

Wilson adopted a new item format for the WPAI, replacing the evaluative propositional form of item with a list of brief labels or catch-phrases representing various familiar and controversial issues. For example, the item 'If the rich were made to share their wealth then everybody would be a lot happier, including the rich, who have more money than is good for them anyway' was reduced to 'Socialism' (Yes, ?, No). This modified format was in response to a critique of traditional scales for measuring social attitudes, such as the Rokeach Dogmatism Scale, which comprise directive statements with which the respondent is required to express some amount of agreement or disagreement. The problem with such statements, according to Wilson, is that a response bias due to acquiescence is likely, particularly if respondents are low in intelligence or lacking in self-confidence. Perhaps the crucial difference between the WPAI and EASF is that the former is specifically aimed at eliciting an immediate, emotional response, whilst the latter is intended to evoke a more considered, intellectual response.

'Conservatism-Liberalism' constitutes Factor 1 of WPAI. The scale is keyed on all 50 items, 25 positively and 25 negatively. The item order is randomised to avoid possible response sets. In a section on standardisation data, Wilson reports the scores of 31 groups on the Conservatism Scale of the WPAI, the most similar groups in the present context being as follows (Wilson, 1975, p 36).

Group	N	M	SD
University students (UK)	50	25.33	13.0
Secondary school pupils (NZ)	133	44.64	11.63
Schoolgirls (state school, UK)	85	36.86	10.19
Schoolgirls (catholic school, UK)	100	51.99	11.3

In order to investigate the convergent validity of EASF, this scale together with WPAI was administered in 1981-2 to 100 school students from a variety of schools in the London area. None of the schools used were participating in the major longitudinal study. All of the respondents were lower sixth students studying Advanced Level economics. The detailed scores for the 100 cases are reported in Appendix 6. On the 12-item EAS (EASF), the mean score was 36.58 and the standard deviation 10.77. It is difficult to compare the WPAI mean score with the scores quoted in the above norming data, as the groups are not directly comparable, but the figure of 36.27 does not seem unreasonable. The group mean on EASF of 36.58 is very similar to that obtained on the full pre-test (n=1006) of 35.9.

In order to calculate the correlation between the scores on the two scales for the sample, the Pearson product-moment coefficient of correlation was employed:

$$r_{xy} = \frac{Exy}{NSxSy} = \frac{-2958}{(100)(8.0)(10.8} = \underline{-0.34}$$

A negative correlation would be expected given that a higher score on the WPAI represents a more conservative position on the conservative/liberal continuum, whilst this is represented by a lower score on EASF.

In order to test the hypothesis that the population p (correlation) is zero, the parameter t was estimated by the formula:

$$t = r\sqrt{\frac{n-2}{1-r^2}} \quad \text{d.f. } (n-2) \qquad t = -0.34\sqrt{\frac{98}{1-(0.34)^2}} \qquad t = -3.58 \text{ (sig. } <.001).$$

Whilst it would be wrong to place too much emphasis on this result, it would seem that the validity of EASF does receive some confirmation from the correlation between it and WPAI. It is important to stress however that this is only one piece of evidence to support the construct validity of EASF.

Another approach to validity is through evaluating the content of the instrument. In essence, content validity depends on how well an empirical measurement reflects a specific domain of content. (Carmines, 1979, p 20). The EASF would not be content-valid if the statements in the instrument referred to only a minor part of the domain of attitudes to economic issues. While a number of minor issues were omitted, the scale does comprise a fair cross-section of statements on mainstream economics questions. The set of items was formulated with the intention of reflecting the content of the hypothesised latent variable of conservatism/radicalism, but since there is no agreed criterion for determining the extent to which a measure has attained content validity, the concept remains a matter of subjective judgment. The attenuated version of EAS (EASF) did not lose any items which would bring into question its content validity.

Conclusion

Finally, some general observations on the validity of attitude scales may be made. A basic assumption common to all attitude scales is that subjective attitudes can be measured by a quantitative technique, so that each person's opinion can be represented by a numerical score. (Severy, 1974, p 4). It is assumed that scores on individual items of a scale have additive properties, and that on a five-point Likert-type scale, the interval between each rating is uniform. Furthermore, the method of using attitude scales assumes that a particular test item has the same meaning for all respondents, so that a given response will be scored identically by everyone making it. While such assumptions may not always be justified, no measurement technique has yet been developed which does not include them.

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ECONOMICS ATTITUDE SCALE - A

Below are given twenty statements which represent opinions held by particular people on various economic questions. They were chosen in such a way that most people are likely to agree with some, and to disagree with others.

After each statement please record your personal opinion regarding it. You should use the following system of marking : place a tick in the appropriate box

1 ☐ if you strongly agree with the statement

2 ☐ if you agree on the whole

3 ☐ if you are undecided

4 ☐ if you disagree on the whole

5 ☐ if you strongly disagree

Please answer frankly. Remember this is not a test; there are no 'right' or 'wrong' answers. The answer required is your own personal opinion. Be sure not to omit any statements.

The Survey is confidential. The only reason for asking you to state your name is so that in future surveys your responses may be compared with your present opinions.

Please do not consult any other person while you are giving your answers.

1. Private enterprise is the most efficient economic system 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

2. Nationalisation of more industries is likely to lead to inefficiency, bureaucracy and stagnation 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

3. It is up to the government to make sure that everyone has a secure job and a good standard of living 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

4. Capitalism is immoral because it exploits the worker by failing to give him full value for his productive labour 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

5. The individual should be free of government influence, free to make money and spend it as he/she likes 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

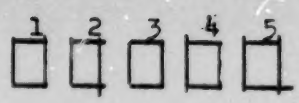
6. Poverty would be almost completely abolished if we made certain basic changes in our social and economic system 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

7. Trade unions should become stronger and have more influence generally 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

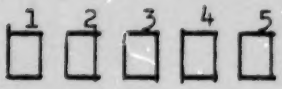
8. Ultimately, private property should be abolished and complete socialism introduced 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

9. Most unemployed people are simply too lazy to work 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

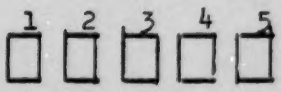
10. The tax system in the U.K. today is unfair to the poor



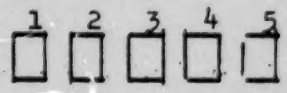
11. Our most important industries ought to be owned and/or controlled by society as a whole, for the good of all the people, rather than by private business seeking profits.



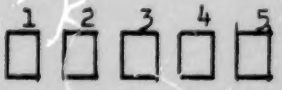
12. The so-called underdog deserves little help or sympathy from successful people



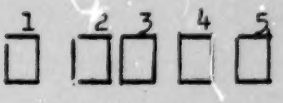
13. It would be better to let an ailing industry collapse rather than supporting it.



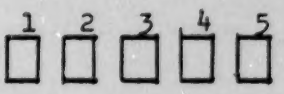
14. The present level of unemployment is too high



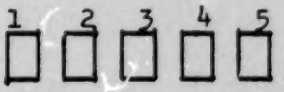
15. Any increase in gross national product is desirable



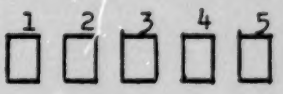
16. The government should step in to aid declining regions



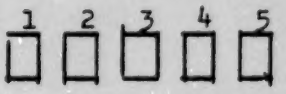
17. Each person has a right to demand an equal share of the assets of the economy



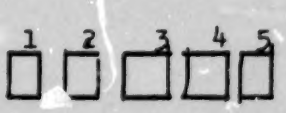
18. Government control of industry is excessive



19. Company profits are important as a measure of efficiency



20. If Britain's standard of living is to continue to rise, industry must be free to invest in the most promising and profitable new areas



Do you have any comments/thoughts about this questionnaire? If so, please jot them down here...

ECONOMICS ATTITUDE SCALE - B

Below are given twenty nine statements which represent opinions held by particular people on various economic questions. They were chosen in such a way that most people are likely to agree with some, and to disagree with others.

After each statement please record your personal opinion regarding it. You should use the following system of marking : place a tick in the appropriate box

1 ☐ if you strongly agree with the statement

2 ☐ if you agree on the whole

3 ☐ if you are undecided

4 ☐ if you disagree on the whole

5 ☐ if you strongly disagree

Please answer frankly. Remember this is not a test; there are no 'right' or 'wrong' answers. The answer required is your own personal opinion. Be sure not to omit any statements.

The Survey is confidential. The only reason for asking you to state your name is so that in future surveys your responses may be compared with your present opinions.

Please do not consult any other person while you are giving your answers.

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		1	2	3	4	5
1.	Private enterprise is the most efficient economic system	☐	☐	☐	☐	☐
2.	Nationalisation of more industries is likely to lead to inefficiency, bureaucracy and stagnation	☐	☐	☐	☐	☐
3.	It is up to the government to make sure that everyone has a secure job and a good standard of living	☐	☐	☐	☐	☐
4.	Capitalism is immoral because it exploits the worker by failing to give him full value for his productive labour	☐	☐	☐	☐	☐
5.	The individual should be free of government influence, free to make money and spend it as he/she likes	☐	☐	☐	☐	☐
6.	Poverty would be almost completely abolished if we made certain basic changes in our social and economic system	☐	☐	☐	☐	☐
7.	The tax system in the U.K. today is unfair to the poor	☐	☐	☐	☐	☐
8.	Our most important industries ought to be owned and/or controlled by society as a whole, for the good of all the people, rather than by private business seeking profits.	☐	☐	☐	☐	☐

		1	2	3	4	5
9.	Each person has a right to demand an equal share of the assets of the economy	☐	☐	☐	☐	☐
10.	Government control of industry is excessive	☐	☐	☐	☐	☐
11.	Company profits are important as a measure of efficiency	☐	☐	☐	☐	☐
12.	Trade unions have a beneficial influence on the economy	☐	☐	☐	☐	☐
13.	Private property is too unequally distributed in Britain	☐	☐	☐	☐	☐
14.	People should be encouraged to seek work by reducing unemployment benefits	☐	☐	☐	☐	☐
15.	If someone earns a lot of money, he or she should be taxed much more heavily than an average income earner	☐	☐	☐	☐	☐
16.	The level of unemployment is admittedly high, but is necessary to solve our economic problems	☐	☐	☐	☐	☐
17.	Firms should be encouraged by the government to expand in declining regions, even if they would prefer to develop in growth areas	☐	☐	☐	☐	☐
18.	High tax rates have removed the incentive to work hard	☐	☐	☐	☐	☐
19.	The economy would work much better if the government involved itself more in its operation	☐	☐	☐	☐	☐
20.	There are more days lost through strikes in the UK than in any other major economies.	☐	☐	☐	☐	☐
21.	We should stop imports of goods when our industries producing those goods have to close down	☐	☐	☐	☐	☐
22.	We shouldn't give aid to developing countries because Britain isn't as rich as other countries in the West	☐	☐	☐	☐	☐
23.	It's disgusting that people can make money by trading in it; it ought not to happen	☐	☐	☐	☐	☐
24.	Jobs should be taken to where the unemployed are, rather than expecting the unemployed to move	☐	☐	☐	☐	☐
25.	The economic performance of the country will only improve when trade unions are weakened	☐	☐	☐	☐	☐

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		1	2	3	4	5
26.	Import controls cannot be justified because they cause resources to be used inefficiently	☐	☐	☐	☐	☐
27.	Cutting public expenditure is essential if the economy is to return to prosperity	☐	☐	☐	☐	☐
28.	Income from owning shares and property should be more heavily taxed than income from working	☐	☐	☐	☐	☐
29.	The government should stop handing out large sums of money to British Leyland	☐	☐	☐	☐	☐

Do you have any comments/thoughts about this survey? If so, please jot them down here .....

Below are given twenty statements which represent opinions held by particular people on various economic questions. They were chosen in such a way that most people are likely to agree with some, and to disagree with others.

After each statement please record your personal opinion regarding it. You should use the following system of marking : place a tick in the appropriate box

1 ☐ if you strongly agree with the statement

2 ☐ if you agree on the whole

3 ☐ if you are undecided

4 ☐ if you disagree on the whole

5 ☐ if you strongly disagree

Please answer frankly. Remember this is not a test; there are no 'right' or 'wrong' answers. The answer required is your own personal opinion. Be sure not to omit any statements.

The Survey is confidential. The only reason for asking you to state your name is so that in future surveys your responses may be compared with your present opinions.

Please do not consult any other person while you are giving your answers.

		1	2	3	4	5
1.	Private enterprise is the most efficient economic system	☐	☐	☐	☐	☐
2.	Nationalisation of more industries is likely to lead to inefficiency, bureaucracy and stagnation	☐	☐	☐	☐	☐
3.	It is up to the government to make sure that everyone has a secure job and a good standard of living	☐	☐	☐	☐	☐
4.	Capitalism is immoral because it exploits the worker by failing to give him full value for his productive labour	☐	☐	☐	☐	☐
5.	The individual should be free of government influence, free to make money and spend it as he/she likes	☐	☐	☐	☐	☐
6.	Poverty would be almost completely abolished if we made certain basic changes in our social and economic system	☐	☐	☐	☐	☐
7.	The tax system in the U.K. today is unfair to the poor	☐	☐	☐	☐	☐
8.	Our most important industries ought to be owned and/or controlled by society as a whole, for the good of all the people, rather than by private business seeking profits	☐	☐	☐	☐	☐

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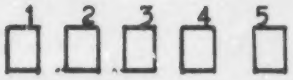
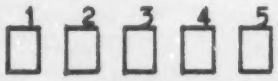
9. Each person has a right to demand an equal share of the assets of the economy

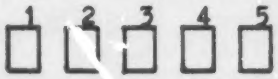


10. Trade unions have a beneficial influence on the economy

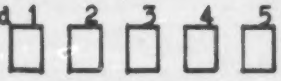
11. Private property is too unequally distributed in Britain



12. People should be encouraged to seek work by reducing unemployment benefits

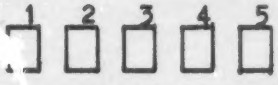


13. If someone earns a lot of money, he or she should be taxed much more heavily than an average income earner

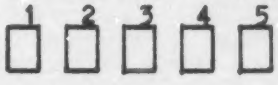


14. The level of unemployment is admitte[illegible]igh, but is necessary to solve our economic p[illegible]

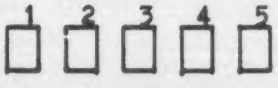
15. High tax rates have removed the incentive to work hard



16. We should stop imports of goods when our industries producing those goods have to close down

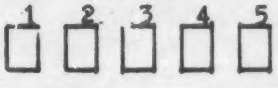


17. Jobs should be taken to where the unemployed are, rather than expecting the unemployed to move

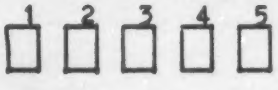


18. Cutting public expenditure is essential if the economy is to return to prosperity

19. Income from owning shares and property should be more heavily taxed than income from working



20. The government should stop handing out large sums of money to British Leyland



APPENDIX 4

ECONOMICS ATTITUDE SCALE D

Overleaf are given eighteen statements which represent opinions held by particular people on various economic questions. They were chosen in such a way that most people are likely to agree with some, and to disagree with others.

After each statement please record your personal opinion regarding it. You should use the following system of marking: place a tick in the appropriate box.

1 ☐ if you strongly agree with the statement

2 ☐ if you agree on the whole

3 ☐ if you are undecided

4 ☐ if you disagree on the whole

5 ☐ if you strongly disagree

Please answer frankly. Remember this is not a test; there are no 'right' or 'wrong' answers. The answer required is your own personal opinion. Be sure not to omit any statements.

The Survey is confidential. The only reason for asking you to state your name is so that in future surveys your responses may be compared with your present opinions.

Please do not consult any other person while you are giving your answers.

		1	2	3	4	5
1.	Private enterprise is the most efficient economic system	☐	☐	☐	☐	☐
2.	Nationalisation of more industries is likely to lead to inefficiency, bureaucracy and stagnation	☐	☐	☐	☐	☐
3.	It is up to the government to make sure that everyone has a secure job and a good standard of living	☐	☐	☐	☐	☐
4.	Capitalism is immoral because it exploits the worker by failing to give him full value for his productive labour	☐	☐	☐	☐	☐
5.	The individual should be free of government influence, free to make money and spend it as he/she likes	☐	☐	☐	☐	☐
6.	Poverty would be almost completely abolished if we made certain basic changes in our social and economic system	☐	☐	☐	☐	☐
7.	The tax system in the UK today is unfair to the poor	☐	☐	☐	☐	☐
8.	Our most important industries ought to be owned and/or controlled by society as a whole, for the good of all the people, rather than by private business seeking profits.	☐	☐	☐	☐	☐
9.	Each person has a right to demand an equal share of the assets of the economy	☐	☐	☐	☐	☐
10.	Trade unions have a beneficial influence on the economy	☐	☐	☐	☐	☐
11.	Private property is too unequally distributed in Britain	☐	☐	☐	☐	☐
12.	People should be encouraged to seek work by reducing unemployment benefits	☐	☐	☐	☐	☐
13.	If someone earns a lot of money, he or she should be taxed more heavily than an average income earner	☐	☐	☐	☐	☐
14.	The level of unemployment is admittedly high, but is necessary to solve our economic problems	☐	☐	☐	☐	☐
15.	High tax rates have removed the incentive to work hard	☐	☐	☐	☐	☐
16.	Jobs should be taken to where the unemployed are, rather than expecting the unemployed to move	☐	☐	☐	☐	☐
17.	Cutting public expenditure is essential if the economy is to return to prosperity	☐	☐	☐	☐	☐
18.	Income from owning shares and property should be more heavily taxed than income from working	☐	☐	☐	☐	☐

PLEASE CHECK THAT YOU HAVE RESPONDED TO EVERY STATEMENT

THANK YOU VERY MUCH FOR YOUR CO-OPERATION.

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Appendix 5

Items retained in EASF

3. It is up to the government to make sure that everyone has a secure job and a good standard of living.

4. Capitalism is immoral because it exploits the worker by failing to give him full value for his productive labour.

6. Poverty would be almost completely abolished if we made certain basic changes in our social and economic system.

7. The tax system in the UK today is unfair to the poor.

8. Our most important industries ought to be owned and/or controlled by society as a whole, for the good of all the people, rather than by private business seeking profits.

9. Each person has a right to demand an equal share of the assets of the economy.

10. Trade unions have a beneficial influence on the economy.

11. Private property is too unequally distributed in Britain.

14. The level of unemployment is admittedly high, but is necessary to solve our economic problems.

16. Jobs should be taken to where the unemployed are, rather than expecting the unemployed to move.

17. Cutting public expenditure is essential if the economy is to return to prosperity.

18. Income from owning shares and property should be more heavily taxed than income from working.

Appendix b

Scores of 100 subjects on EAS and WPAI

Case	X	Y	x	y	x^2	y^2	xy
1	41	41	+4	+5	16	25	20
2	48	41	+11	+5	121	25	55
3	41	21	+4	-15	16	225	-60
4	41	41	+4	+5	16	25	20
5	43	46	+6	+10	36	100	60
6	29	48	-8	+12	64	144	-96
7	20	48	-17	+12	289	144	-204
8	30	36	-7	0	49	0	0
9	23	48	-14	+12	196	144	-168
10	43	38	+6	+2	36	4	12
11	36	48	-1	+12	1	144	-12
12	43	49	+6	+13	36	169	78
13	29	26	-8	-10	64	100	80
14	15	56	-22	+20	484	400	-440
15	33	34	-4	-2	16	4	8
16	28	35	-9	-1	81	1	9
17	29	38	-8	+2	64	4	-16
18	29	49	-8	+13	64	164	-104
19	29	40	-8	+4	64	16	-32
20	29	33	-8	-3	64	9	24
21	34	49	-3	+13	9	169	-39
22	42	43	+5	+7	25	49	35
23	27	38	-10	+2	100	4	-20
24	35	25	-2	-11	4	121	22
25	38	66	+1	+30	1	900	30
26	26	30	-11	-6	121	36	66
27	30	52	-7	+16	49	256	-112
28	41	39	+4	+3	16	9	12
29	44	26	+7	-10	49	100	-70
30	25	41	-12	+5	144	25	-60
31	30	29	-7	-7	49	49	49
32	36	39	-1	+3	1	9	-3
33	23	51	-14	+15	196	225	-210
34	40	34	+3	+2	9	4	6
35	39	41	+2	+5	4	25	10
36	24	54	-13	+18	169	324	-234
37	36	34	-1	-2	1	4	2
38	37	34	0	-2	0	4	0
39	26	32	-11	-4	121	16	44
40	42	38	+5	+2	25	4	10
41	37	37	0	+1	0	1	0
42	41	26	+4	-10	16	100	-40
43	46	21	+9	-15	81	225	-135
44	53	34	+16	-2	256	4	-32
45	46	14	+9	-22	81	484	-198
46	41	33	+4	-3	16	9	-12
47	24	51	-13	+15	169	225	-195
48	43	12	+16	-24	256	576	-144
49	46	32	+9	-4	81	16	-36
50	50	30	+13	-6	169	36	-78
51	26	41	-11	+5	121	25	-55
52	26	34	-11	-2	121	4	22
53	34	19	-3	-17	9	289	51
54	39	48	+2	+12	4	144	24
55	46	31	+9	-5	81	25	-45
56	43	25	+6	-11	36	121	-66
57	32	32	-5	-4	25	16	20
58	44	25	+7	-11	49	121	-77
59	46	46	+9	+10	81	100	90
60	32	40	-5	+4	25	16	-20
61	39	37	+2	+1	4	1	2
62	39	32	+2	-4	4	16	-8
63	40	34	+3	-2	9	4	-6
64	36	35	-1	-1	1	1	1
65	36	44	-1	+8	1	64	-8
66	45	41	+8	+5	64	25	40
67	38	38	+1	+2	1	4	2
68	31	29	-6	-7	36	49	42
69	41	36	+4	0	16	0	0
70	40	33	+3	-3	9	9	-9
71	36	33	-1	-3	1	9	3
72	44	27	+7	-9	49	81	-63
73	40	40	+3	+4	9	16	12
74	44	43	+7	+7	49	49	49
75	31	34	-6	-2	36	4	12
76	35	43	-2	+7	4	49	-14
77	44	35	+7	-1	49	1	-7
78	32	55	-5	+19	25	361	-95
79	43	62	+6	+26	36	676	156
80	18	48	-19	+12	361	144	-228
81	35	46	-2	+10	4	100	-20
82	34	33	-3	-3	9	9	9
83	51	22	+14	-14	196	196	-196
84	44	32	+7	-4	49	16	-28
85	48	19	+11	-17	121	289	-187
86	41	64	+4	+28	16	784	112
87	31	27	-6	-9	36	81	54
88	28	30	-9	-6	81	36	54
89	58	27	+21	-9	441	81	-189
90	47	39	+10	+3	100	9	30
91	29	22	-8	-14	64	196	112
92	41	16	+4	-20	16	400	-80
93	40	31	+3	-5	9	25	-15
94	33	35	-4	-1	16	1	4
95	42	28	+5	-8	25	64	-40
96	22	36	-15	0	225	0	0
97	47	5	+10	-31	100	961	-310
98	35	33	-2	-3	4	9	-3
99	32	33	-5	-3	25	9	0
100	39	28	+2	-8	4	64	-8

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